DOCUMENT RESUME

ED 306 200 SP 031 075

AUTHOR Stevens, Deborah A.
TITLE Development and Initial Test of Viability for Body Size Estimation in Children.
PUB DATE Feb 89
NOTE 18p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Body Image; *Elementary School Students; Grade 2; Personal Space; Primary Education; *Self Concept; *Student Attitudes; *Test Validity
IDENTIFIERS *Block Figure Model

ABSTRACT

The purposes of this study were to: (1) develop a tangible instrument to measure pupils' body size estimation; (2) test the feasibility of using the instrument with young elementary school children; (3) develop, utilize, and modify directions to the children; and (4) initially check validity. Ten second-grade children were instructed to build a block figure model (BFM) representing an estimate of their own perceived body segments. The children built the model by: (1) selecting the hip-width blocks to be used; (2) building the legs to the perceived height; (3) building the trunk to the perceived height; and (4) attaching the head and arms. Results showed consistent underestimation and demonstrated tendencies toward significant correlation between actual estimations and perceived estimates of body size on three of the four variables. The hip-width variable demonstrated erratic estimates with very low correlation, . It is suggested that the BFM instrument may be a viable measure for the estimation of perceived body size in children. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED306200

DEVELOPMENT AND INITIAL TEST OF VIABILITY FOR BODY SIZE ESTIMATION IN CHILDREN

Deborah A. Stevens
The University of Tennessee
Knoxville, Tennessee

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

D. A. Stevens

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Refereed Paper Presented at the Annual Conference of the Southern District of the American Alliance for Health, Physical Education, Recreation, and Dance as a Poster Presentation

Chattanooga, Tennessee
February, 1989

SP031 075

BEST COPY AVAILABLE

ABSTRACT

THE ABILITY TO DEFINE AND PERCEIVE THE IMAGE OF THE BODY IS AN IMPORTANT ASPECT IN A CHILD'S TOTAL DEVELOPMENT. THE DEVELOPMENT OF INDIVIDUAL PERCEPTUAL ABILITY GREATLY INCREASES THE CHILD'S TOTAL BODY AWARENESS AND RESULTING EFFICIENCY OF MOVEMENT. BODY SIZE ESTIMATION IS ONE ASPECT OF MEASURING THE BODY-IMAGE THAT IS UTILIZED TO MEASURE ACCURACY OF SELF-PERCEPTION. PREVIOUS RESEARCH HAS SOUGHT TO MEASURE THE OUTER LIMITS OF THE BODY BOUNDARY THROUGH INSTRUMENTS WHICH SURROUND THE INDIVIDUAL'S ESTIMATION OF THAT ZONE. A MORE SPECIFIC MEASURE OF AN INDIVIDUAL'S SIZE CAN BE OBTAINED BY HAVING THE CHILD BUILD A BLOCK FIGURE MODEL (BFM) REPRESENTING AN ESTIMATE OF HIS/HER PERCEIVED BODY SEGMENTS. THE PURPOSES OF THIS STUDY WERE TO: (A) DEVELOP A TANGIBLE INSTRUMENT (BFM) TO MEASURE BODY SIZE ESTIMATION, (B) TEST THE FEASIBILITY OF USING THE INSTRUMENT (BFM) WITH YOUNG ELEMENTARY SCHOOL CHILDREN, (C) DEVELOP, UTILIZE, AND MODIFY DIRECTIONS TO THE CHILDREN, AND (D) INITIALLY CHECK VALIDITY. THE SUBJECTS INCLUDED 10 SECOND GRADE CHILDREN FROM A DAY CARE CENTER IN A METROPOLITAN AREA. THE STUDY SOUGHT TO EXAMINE THE DIFFERENCE IN PERCEIVED MEASURES ON THE BFM AND THE ACTUAL MEASURES UTILIZING FOUR VARIABLES, I.E., TOTAL HEIGHT, LEG LENGTH, HIP WIDTH, AND TRUNK LENGTH. TO ASCERTAIN THE CORRESPONDENCE BETWEEN ACTUAL AND PERCEIVED MEASURES OF BODY SIZE ESTIMATION ON THE BFM, TESTING OCCURRED IN TWO DIFFERENT SESSIONS APPROXIMATELY SEVEN DAYS APART. THE FIRST TEST SESSION INVOLVED TAKING THE ACTUAL MEASURES BETWEEN BONY LANDMARKS OF

TOTAL HEIGHT, LEG LENGTH, HIP WIDTH AND TRUNK LENGTH ON THE CHILD. A DISCUSSION ABOUT THE CONCEPTS OF HEIGHT AND WIDTH WAS CONDUCTED WITH THE CHILD TO DEVELOP AN UNDERSTANDING OF THE CONCEPTS WHICH WOULD BE USED IN THE NEXT TEST SESSION. THE SECOND TEST SESSION INVOLVED THE ACTUAL BUILDING OF THE BFM MODEL BY THE CHILD. THE CHILD PROCEEDED TO BUILD THE MODEL BY: (A) SELECTING THE HIP WIDTH BLOCKS TO BE USED, (B) BUILDING THE LEGS TO THE PERCEIVED HEIGHT, (C) BUILDING THE TRUNK TO THE PERCEIVED HEIGHT, AND (D) ATTACHING THE HEAD AND ARMS. THE MEASURES OF TOTAL HEIGHT, LEG LENGTH, HIP WIDTH, AND TRUNK LENGTH WERE RECORDED FROM THE BFM AND COMPARED WITH THE PREVIOUS ACTUAL MEASURES OF THE CHILD. RESULTS OF ASCENDING SCORES SHOWED CONSISTENT UNDERESTIMATION AND DEMONSTRATED TENDENCIES TOWARD SIGNIFICANT CORRELATIONS ($p < .10$) BETWEEN ACTUAL ESTIMATIONS AND PERCEIVED ESTIMATES OF BODY SIZE ON THREE OF THE FOUR VARIABLES: (A) LEG LENGTH SHOWED THE HIGHEST CORRELATION OF .870, $p=.001$, (B) TOTAL HEIGHT PROVIDED A CORRELATION OF .556, $p=.095$, AND (C) TRUNK LENGTH PROVIDED A CORRELATION COEFFICIENT OF .588, $p=.0735$. THE FOURTH VARIABLE OF HIP WIDTH DEMONSTRATED ERRATIC ESTIMATES WITH VERY LOW CORRELATION. THE PRIMARY CONTRIBUTION OF THE STUDY SUGGESTED THAT THE BFM INSTRUMENT MAY BE A VIABLE MEASURE FOR THE ESTIMATION OF PERCEIVED BODY SIZE IN CHILDREN. RELIABILITY AND FURTHER VALIDATION TESTS ARE CURRENTLY BEING CONDUCTED. RESEARCH IN THIS AREA CAN LEAD TO A GREATER UNDERSTANDING OF HOW CHILDREN VIEW THEMSELVES AND HOW THAT PERCEPTION INFLUENCES FUTURE MOTOR PERFORMANCE.

INTRODUCTION

SELF-CONCEPT IS A BROAD TERM THAT ENCOMPASSES A VARIETY OF COMPONENTS RELATING TO THE ATTITUDES AND FEELINGS AN INDIVIDUAL HAS ABOUT HIS/HER IDENTITY, LIFEROLE, AND APPEARANCE (FISHER & CLEVELAND, 1965). A SINGLE ASPECT OF SELF-CONCEPT INVOLVES THAT OF BODY-IMAGE CONCEPT OR THE DEFINITIVENESS WITH WHICH ONE REGARDS THE IMAGE OF THE BODY. THE BODY-IMAGE CONCEPT INVOLVES BODY ATTITUDES AND BODY EXPERIENCES WHICH OVERLAP WITH SELF-CONCEPT, BUT GROW OUT OF ONE'S SOCIALLY DETERMINED ROLES AND IDENTITIES (FISHER & CLEVELAND, 1965).

THE BODY-IMAGE CONCEPT IS VIEWED AS ONE ASPECT OF THE SELF-CONCEPT. THE TWO CONSTRUCTS OVERLAP IN THAT THE BODY-IMAGE INVOLVES ONE PORTION OF THE RANGE OF OVERALL ATTITUDES THE INDIVIDUAL HAS CONCERNING THE SELF. WITKIN (1965) DEFINES THE BODY CONCEPT AS THE SYSTEMATIC IMPRESSIONS INDIVIDUALS HAVE OF THEIR BODY: (A) WHICH IS BOTH COGNITIVE AND AFFECTIVE, CONSCIOUS AND UNCONSCIOUS, AND (B) THAT IS FORMED IN THE COURSE OF GROWING UP. AWARENESS OF THE BODY-IMAGE IS ESSENTIAL TO THE DEVELOPMENT OF MOTOR SKILLS AND MOVEMENT. IT IS IMPORTANT THAT CHILDREN HAVE AN ACCURATE UNDERSTANDING OF THEIR BODY AND IT'S RELEVANT POSITION IN SPACE.

BODY SIZE ESTIMATION IS ONE ASPECT OF MEASURING BODY-IMAGE WHICH IS BEING UTILIZED TO MEASURE ACCURACY OF SELF-PERCEPTION. IN THIS AREA OF RESEARCH, MOST OF THE INSTRUMENTS WHICH HAVE BEEN USED TO ESTIMATE BODY SIZE HAVE INVOLVED SOME

PROJECTIVE TECHNIQUE OR PAPER AND PENCIL TYPE TEST. MEASURES OF BODY-IMAGE ENCOUNTERED IN THE LITERATURE ARE: (A) THE BARRIER SCORE (FISHER & CLEVELAND, 1958), (B) ROD AND FRAME TEST (WAPNER & WERNER, 1965), (C) DRAW-A-PERSON TEST (MACHOVER, 1949), (D) SCHEMATIC REPRESENTATIONS OF BODY PARTS TEST (KATCHNER & LEVIN, 1955), AND (E) ESTIMATION OF BODY PART SIZE (FUHRER & COWAN, 1967; SHONTZ, 1965; MCFEE, 1968; WOODS, 1966).

THROUGH PLAY AND MOVEMENT, CHILDREN CAN DEVELOP AN INNER AWARENESS OF THEIR OWN BODY-IMAGE THAT ALLOWS THEM TO INDIRECTLY ESTIMATE THE BODY SIZE THEY PERCEIVE. PREVIOUS RESEARCH (DILLON, 1962; HART, 1971) HAS SOUGHT TO MEASURE THE OUTER LIMITS OF THE BODY BOUNDARY, MAINLY THROUGH INSTRUMENTS WHICH SURROUND THE INDIVIDUAL'S ESTIMATION OF THAT ZONE. A MORE SPECIFIC MEASURE OF AN INDIVIDUAL'S SIZE CAN BE OBTAINED BY HAVING EACH CHILD BUILD A BLOCK FIGURE REPRESENTING AN ESTIMATION OF HIS/HER PERCEIVED HEIGHT AND WIDTH UTILIZING THE BLOCK FIGURE MODEL (BFM).

PURPOSE

THE MAJOR PURPOSE OF THIS STUDY WAS TO DEVELOP AN INITIAL TEST OF VIABILITY FOR BODY SIZE ESTIMATION IN CHILDREN. SECONDARY PURPOSES INCLUDED: (A) TESTING THE FEASIBILITY OF USING THE BLOCK FIGURE MODEL (BFM) INSTRUMENT TO TEST ELEMENTARY SCHOOL CHILDREN, (B) DEVELOPING, UTILIZING, AND MODIFYING DIRECTIONS FOR USE WITH THE BFM, AND (C) INITIALLY CHECKING VALIDITY.

SUBJECTS

THE SUBJECTS PARTICIPATING IN THE STUDY INCLUDED 10 SECOND GRADE CHILDREN FROM THE KNOXVILLE, TENNESSEE AREA. THE SUBJECTS INCLUDED FIVE MALE AND FIVE FEMALE STUDENTS WITH AN AGE RANGE OF SIX TO EIGHT YEARS. ALL STUDENTS WERE PARTICIPANTS IN AN AFTER SCHOOL DAY CARE PROGRAM IN THE AREA. PARTICIPATION WAS VOLUNTARY AND SUBJECTS WERE ALLOWED TO WITHDRAW FROM THE STUDY AT ANY TIME. NO PORTION OF THE CHILD'S PERFORMANCE AFFECTED HIS/HER PARTICIPATION IN THE DAY CARE PROGRAM. ALL CHILDREN WERE REQUIRED TO HAVE CONSENT FORMS SIGNED BY THEIR PARENTS AND RETURNED PRIOR TO PARTICIPATION. THE PARENTS WERE INFORMED THAT THE TESTING WOULD REQUIRE TWO SEPARATE SESSIONS LASTING APPROXIMATELY 30 MINUTES EACH.

CONSTRUCTION OF THE INSTRUMENT

THE BASIC NEED FOR THE BLOCK FIGURE MODEL INSTRUMENT (BFM) IS RELATED TO THE PREVIOUS RESEARCH CONDUCTED IN THE AREA OF BODY SIZE ESTIMATION. THE MAJORITY OF INSTRUMENTS WHICH HAVE BEEN USED INVOLVE PROJECTIVE TECHNIQUES. A REVIEW OF THE CURRENT RESEARCH REVEALED ONLY ONE DEVICE (DILLON, 1962) WHICH HAS BEEN DEVELOPED INVOLVING A DIRECT MEASURE OF THE CHILD'S PERCEPTION OF BODY SIZE. DILLON (1962) CHALLENGED THE CHILD TO USE THE INSTRUMENT TO SURROUND THE BODY BOUNDARY IN ORDER TO "FIT" THE CHILD'S ESTIMATION OF BODY SIZE.

THE BFM INSTRUMENT INCORPORATES DILLON'S RESEARCH PURPOSES AND IN ADDITION, ADDS THE FOLLOWING: (A) THE BFM ALLOWS FOR SIZE ESTIMATION OF FOUR BODY PARTS, I.E., TOTAL HEIGHT, LEG LENGTH, HIP WIDTH, AND TRUNK LENGTH, (B) THE BFM INCORPORATES THE PERCEPTION OF THE OUTER BODY BOUNDARY AND INWARD CONCEPTION OF THE INDEPENDENT SEGMENTS, AND (C) THE BFM ALLOWS FOR A MORE REALISTIC VISUALIZATION OF THE ACTUAL BODY SIZE.

THE BFM INSTRUMENT CONSISTS OF INDIVIDUAL BUILDING BLOCKS WHICH STACK TOGETHER TO SIMULATE VARIOUS HEIGHTS AND WIDTHS. THE INSTRUMENT IS COMPOSED OF FIVE INDIVIDUAL SEGMENTS: (A) A BASEBOARD, (B) LEG BLOCKS, (C) TRUNK BLOCKS, (D) ARM PIECES, AND (E) A HEAD PIECE. THE ARM PIECES AND HEAD, A DECORATED BALLOON, ARE THE ONLY PARTS OF THE MODEL WHICH ARE NOT ALTERABLE, THESE TWO PORTIONS ARE INCLUDED SIMPLY FOR VISUAL PURPOSES. THE LEGS ARE COMPOSED OF 24 BLOCKS PER LEG AND A TOTAL POSSIBLE HEIGHT OF APPROXIMATELY 36 INCHES. THE

TRUNK WIDTH VARIATIONS INCLUDE FOUR SETS OF BLOCKS THAT CORRESPOND WITH THE HIP WIDTH MEASURES OF 6, 8, 10, AND 12 INCHES. EACH SET OF TRUNK BLOCKS CONTAIN 18 BLOCKS WITH A TOTAL POSSIBLE HEIGHT OF APPROXIMATELY 27 INCHES. WHEN COMPLETELY ASSEMBLED THE BFM WILL REACH A TOTAL POSSIBLE HEIGHT OF APPROXIMATELY 63 INCHES. THE VARIATIONS OF HEIGHT AND WIDTH ENABLE THE BFM TO BE EASILY ADAPTED TO VARYING SIZES AND AGES OF CHILDREN.

PROCEDURES

THE BFM WAS USED AS THE BASIC INSTRUMENT TO ASSESS THE BODY SIZE ESTIMATIONS OF THE FOLLOWING: (A) TOTAL HEIGHT, (B) LEG LENGTH, (C) HIP WIDTH, AND (D) TRUNK LENGTH. TO ASCERTAIN THE CORRESPONDENCE BETWEEN ACTUAL AND PERCEIVED MEASURES OF BODY SIZE ESTIMATION ON THE BFM, TESTING OCCURRED IN TWO DIFFERENT SESSIONS APPROXIMATELY FOUR DAYS APART. APPROXIMATELY 30 TOTAL MINUTES WERE REQUIRED TO TEST EACH STUDENT.

THE FIRST TEST SESSION INVOLVED TAKING THE ACTUAL MEASUREMENTS OF TOTAL HEIGHT, LEG LENGTH, HIP WIDTH, TRUNK LENGTH, AND HEAD HEIGHT ON EACH CHILD AND RECORDING THOSE MEASURES ON THE STUDENT SCORE SHEET. MEASUREMENTS WERE TAKEN USING AN ANTHROPOMETER IN CONJUNCTION WITH SPECIFIC LANDMARK SITES ON THE BODY. THE MEANING OF THREE TERMS, I.E., TRUNK, HEIGHT, AND WIDTH, WERE DISCUSSED WITH THE CHILD TO ELICIT A BETTER UNDERSTANDING OF HOW THESE TERMS WOULD BE USED IN TEST SESSION II. AT THE END OF TEST SESSION I THE CHILD WAS INTRODUCED TO A STANDING MODEL OF THE BFM AND WAS TOLD THAT HE/SHE WOULD BE BUILDING A SIMILAR MODEL IN RELATION TO HIS/HER SIZE IN TEST SESSION II.

TEST SESSION II BEGAN WITH A REVIEW OF THE TERMS OF TRUNK, HEIGHT, AND WIDTH. THE CHILD THEN SELECTED THE TRUNK WIDTH BLOCKS THAT THEY PERCEIVED AS BEING CLOSEST IN SIZE TO THEIR OWN HIP WIDTH. THIS STEP HAD TO OCCUR PRIOR TO BUILDING THE MODEL SO ADJUSTMENTS ON THE BASEBOARD COULD BE MADE. THE

CHILD STOOD ON A LINE FOUR FEET AWAY FROM THE MODEL AND INSTRUCTED THE RESEARCHER TO ADD BLOCKS TO BUILD THE LEG PORTION OF THE MODEL. THE BLOCKS WERE STACKED EQUALLY FOR THE LEFT AND RIGHT LEG TO A POINT WHERE THE CHILD FELT THE MODEL SUFFICIENTLY MATCHED WITH HIS/HER OWN LEG LENGTH. THE TRUNK HEIGHT WAS BUILT NEXT AS THE CHILD DIRECTED THE RESEARCHER TO STACK THE BLOCKS TO THE DESIRED HEIGHT. THROUGHOUT THE BLOCK STACKING THE CHILD WAS REMINDED OF THE VARIOUS LANDMARK SITES WHICH WERE BEING USED AND WAS ALLOWED TO MAKE ANY ALTERATIONS IN THE MODEL AS HE/SHE WENT ALONG. THE MODEL WAS COMPLETED BY ATTACHING THE ARMS AND HEAD, A DECORATED BALLOON. THE CHILD WAS REINFORCED FOR COMPLETING THE MODEL AND RETURNED TO THE CLASSROOM. THE FOUR MAIN MEASUREMENTS OF TOTAL HEIGHT, LEG LENGTH, HIP WIDTH, AND TRUNK LENGTH WERE RECORDED FROM THE MODEL AND COMPARED WITH THE ACTUAL MEASUREMENTS TAKEN PREVIOUSLY ON THE CHILD.

RESULTS

RESULTS OF ASCENDING SCORES WERE CONSISTENTLY UNDERESTIMATES AND DEMONSTRATED TENDENCIES TOWARD SIGNIFICANT CORRELATIONS BETWEEN ACTUAL ESTIMATES AND PERCEIVED ESTIMATES OF BODY SIZE ON THREE OF THE FOUR VARIABLES: (A) LEG LENGTH SHOWED THE HIGHEST CORRELATION OF .870, WITH p=.001, (B) TOTAL HEIGHT PROVIDED A CORRELATION COEFFICIENT OF .556, WITH p=.095, AND (C) TRUNK LENGTH PROVIDED A CORRELATION COEFFICIENT OF .588, WITH p=.0735. THE FOURTH VARIABLE OF HIP WIDTH DEMONSTRATED ERRATIC ESTIMATES WITH VERY LOW CORRELATIONS. THERE WAS NO REPEATED TESTING OF THE SAMPLE, THEREFORE, RELIABILITY ASSESSMENT WAS NOT POSSIBLE.

SUMMARY

MUCH OF THE RESEARCH IN THE AREA OF BODY-IMAGE DEFINITIVENESS HAS INVOLVED PROJECTIVE TECHNIQUES OR PSYCHOLOGICAL PAPER AND PENCIL TESTS (FISHER & CLEVELAND, 1958; WAPNER & WERNER, 1965; MACHOVER, 1949; KATCHNER & LEVIN, 1955). STUDIES INVOLVING THE DIRECT MEASURE OF PERCEIVED BODY SIZE ARE RARE, BUT DO EXIST (DILLON, 1962; WERNER, WAPNER, & COMALLI, 1957). RESEARCHERS IN THE AREA OF BODY AWARENESS CONTEND THAT THE DEFINITIVENESS WITH WHICH THE BODY-IMAGE IS MEASURED IS INFLUENCED BY THE CHILD'S SELF CONCEPT (WITKIN, 1965). THE WAY IN WHICH A CHILD FEELS ABOUT THE SELF IS A MEASURE OF HOW ARTICULATE ONE MIGHT BE IN ASSESSING BODY-IMAGING.

BODY SIZE ESTIMATION IS ONE MEASURE WHICH CAN BE USED TO ASSESS PERCEPTUAL ABILITY IN CHILDREN. THE ACCURACY OF BODY-IMAGING WILL DEFINE ONE'S PERFORMANCE OF MOVEMENT SKILLS AND ONE'S ABILITY TO LEARN NEW MOVEMENT SKILLS (SHONTZ, 1969). THE ATTRIBUTES WHICH CAN BE DERIVED FROM ESTIMATING BODY SIZE ARE VERY IMPORTANT IN THE TOTAL SCHEMA OF CHILDHOOD GROWTH AND DEVELOPMENT.

THE PRIMARY CONTRIBUTION OF THE STUDY SUGGESTS THAT THE BFM INSTRUMENT MAY BE A VIABLE MEASURE FOR THE ESTIMATION OF PERCEIVED BODY SIZE IN CHILDREN. A VALID AND RELIABLE MEASURING DEVICE WILL FACILITATE THE ACCURATE ASSESSMENT OF THE DEVELOPMENTAL RATE OF BODY AWARENESS AND THE RELATIONSHIP OF THIS CONSTRUCT TO OTHER DEVELOPMENTAL PHENOMENA.

REFERENCES

DILLON, D.J. (1962). MEASUREMENT OF PERCEIVED BODY SIZE. PERCEPTUAL AND MOTOR SKILLS, 14, 191-196.

FISHER, S., & CLEVELAND, S.E. (1958). BODY IMAGE AND PERSONALITY. NEW YORK: DOVER PUBLICATIONS, INC.

FISHER, S., & CLEVELAND, S.E. (1965). PERSONALITY, BODY-PERCEPTION, AND BODY-IMAGE BOUNDARY. IN S. WAPNER & H. WERNER (EDS.), THE BODY PERCEPT (PP.48-67), NEW YORK: RANDOM HOUSE.

FUHRER, M.J., & COWAN, C.O. (1967). INFLUENCE OF ACTIVE MOVEMENTS, ILLUMINATIONS, AND SEX ON ESTIMATES OF BODY PART SIZE. PERCEPTUAL AND MOTOR SKILLS, 24, 979-985.

HART, B. (1971). SIZE ESTIMATION AS A MEASURE OF BODY IMAGE OF THE MOVEMENT PERFORMER. THE RESEARCH QUARTERLY, 42(4), 391-394.

KATCHNER, A., & LEVIN, M.M. (1955). CHILDREN'S CONCEPTIONS OF BODY SIZE. CHILD DEVELOPMENT, 26(2), 103-110.

MCFEE, W.D. (1968). THE RELATIONSHIP BETWEEN BODY-IMAGE BOUNDARIES, ESTIMATES OF DIMENSIONS OF BODY SPACE, AND PERFOEMANCE OF SELECTED GROSS MOTOR TASKS IN LATE ADOLESCENT SUBJECTS. DISSERTATION ABSTRACTS INTERNATIONAL, 29, 1440-A.

MACHOVER, K. (1949). PERSONALITY PROJECTION IN THE DRAWING OF THE HUMAN FIGURE. SPRINGFIELD, ILLINOIS: C.C. THOMAS.

SHONTZ, F.C. (1965). INFLUENCE OF MEASUREMENT CONDITIONS ON SIZE ESTIMATES OF BODY PARTS. JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY, 1(5), 469-475.

SHONTZ, F.C. (1969). PERCEPTUAL AND COGNITIVE ASPECTS OF BODY EXPERIENCE. NEW YORK: ACADEMIC PRESS.

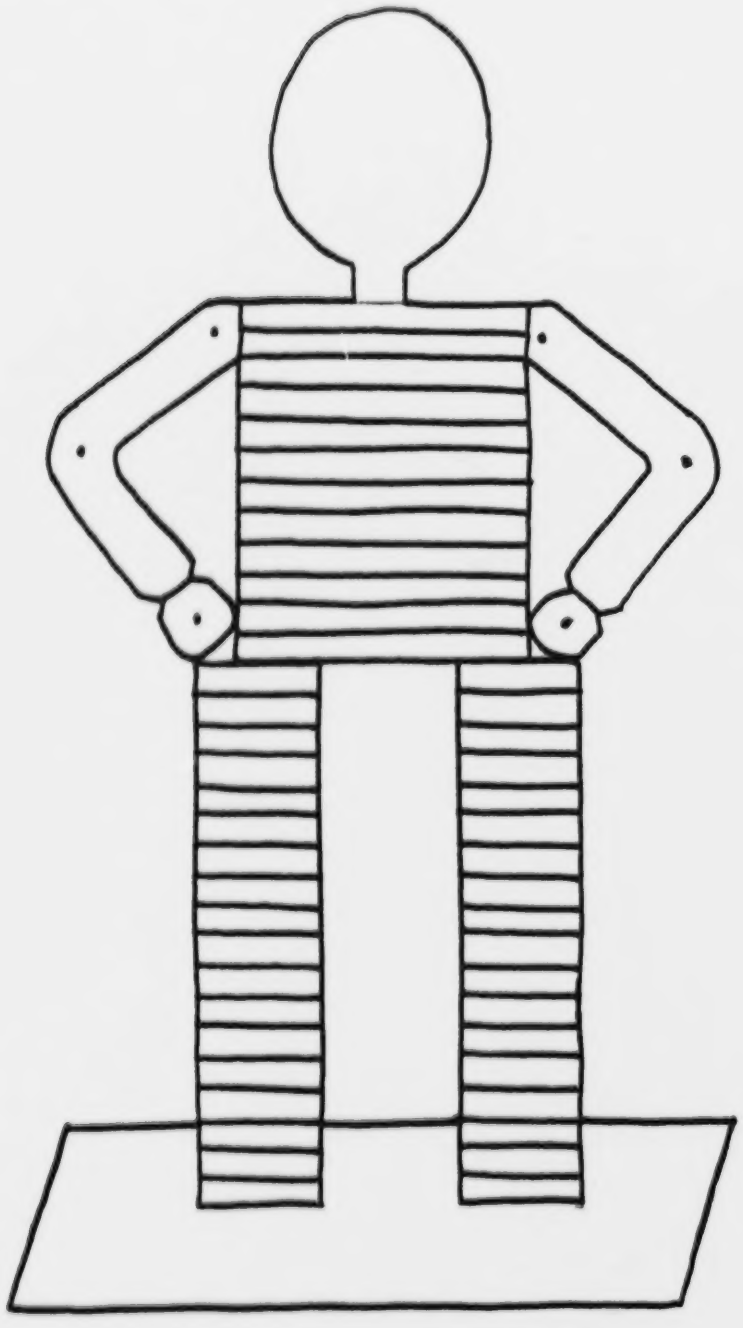
WAPNER, S., & WERNER, H. (1965). THE BODY PERCEPT. NEW YORK: RANDOM HOUSE.

WERNER, H., WAPNER, S., & COMALLI, P.E. (1957). EFFECT OF BOUNDARY ON PERCEPTION OF HEAD SIZE. PERCEPTUAL AND MOTOR SKILLS, 7, 69-71.

WITKIN, H. (1965). DEVELOPMENT OF THE BODY CONCEPT AND PSYCHOLOGICAL DIFFERENTIATION. IN S. WAPNER AND H. WERNER (EDS.), THE BODY PERCEPT (PP. 26-47), NEW YORK: RANDOM HOUSE.

WOOD, M.D. (1966). AN EXPLORATION OF DEVELOPMENTAL RELATIONSHIPS BETWEEN CHILDREN'S BODY-IMAGE BOUNDARIES, ESTIMATES OF DIMENSIONS OF BODY SPACE, AND PERFORMANCE OF SELECTED GROSS MOTOR TASKS. DISSERTATION ABSTRACTS INTERNATIONAL, 27, 4119-4120-A.

BLOCK FIGURE MODEL



INDIVIDUAL SEGMENTS OF THE BFM

*(DIMENSIONS MAY VARY IN ACCORDANCE WITH REGULATION LUMBER SIZE)

SECTION	DIMENSIONS*	NUMBER OF BLOCKS	RANGE OF HEIGHT
BASEBOARD	2"x11"x30"	1	1.56"
LEGS	2"x4"x6"	24/leg	1.56"-35.81"
TRUNK	2"x6",8",10",12"	18/set	1.56"-26.69"
ARMS	2"x4"x8"	2	LENGTH = 16"
HEAD	ONE CONSISTENT SIZE WILL BE USED		